

will be apparent to those of ordinary skill in the art. It is understood that these variations are within the teachings of the present invention, and that the invention is to be limited only by the claims appended hereto.

What is claimed is:

1. An organic optoelectronic device structure comprising:
a polymer substrate layer;
a first barrier region disposed over a first face of said polymer substrate layer;
an organic optoelectronic device selected from an organic light emitting diode, an organic electrochromic display, an organic photovoltaic device and an organic thin film transistor, disposed over a second face of said polymer substrate layer opposite said first face;
a second barrier region disposed over said second face of said polymer substrate layer and over said organic optoelectronic device; and
an adhesive region, wherein said adhesive region is disposed between said polymer substrate layer and said second barrier region such that it bonds said polymer substrate layer to said second barrier region, and wherein said organic optoelectronic device is completely surrounded by the combination of said adhesive region, said polymer substrate layer and second barrier region.
2. The organic optoelectronic device structure of claim 1, wherein said first barrier region comprises at least one planarizing layer and at least one high-density material layer.
3. The organic optoelectronic device structure of claim 2, wherein said first barrier region comprises an alternating series of at least two planarizing layers and at least two high-density material layers.
4. The organic optoelectronic device structure of claim 1, wherein said second barrier region comprises a metal layer.
5. The organic optoelectronic device structure of claim 1, wherein said second barrier region comprises a polymer layer and an alternating series of at least two planarizing layers and at least two high-density material layers, and wherein said polymer layer is disposed adjacent said adhesive region.
6. The organic optoelectronic device structure of claim 1, wherein a gettering material is provided, and wherein said gettering material, along with said organic optoelectronic device, is surrounded by said adhesive region, said polymer substrate layer and second barrier region.
7. The organic optoelectronic device structure of claim 1, wherein said adhesive region comprises an adhesive material selected from an ultraviolet-curable material and a thermally curable material.
8. The organic optoelectronic device structure of claim 7, wherein said adhesive material is an epoxy material.
9. The organic optoelectronic device structure of claim 1, further comprising a third barrier region, said third barrier region covering at least edges of said polymer substrate layer.
10. The organic optoelectronic device structure of claim 9, wherein said third barrier region comprises an epoxy material.
11. The organic optoelectronic device structure of claim 9, wherein the third barrier region covers at least edges of said organic optoelectronic device structure.
12. The organic optoelectronic device structure of claim 11, wherein said third barrier region comprises an epoxy material.
13. The organic optoelectronic device structure of claim 9, wherein the third barrier region encapsulates the entire organic optoelectronic device structure.

14. The organic optoelectronic device structure of claim 13, wherein said third barrier region comprises an epoxy material.
15. The organic optoelectronic device structure of claim 10, wherein said epoxy further comprises a gettering agent.
16. An OLED structure comprising:
a polymer substrate layer;
a first barrier region disposed over a first face of said polymer substrate layer;
an OLED comprising an anode, a cathode and an organic emissive layer, said OLED disposed over a second face of said polymer substrate layer opposite said first face;
a second barrier region disposed over said second face of said polymer substrate layer and over said OLED; and
an adhesive region, wherein said adhesive region is disposed between said polymer substrate layer and said second barrier region such that it bonds said polymer substrate layer to said second barrier region, and wherein said OLED is completely surrounded by the combination of said adhesive region, said polymer substrate layer and second barrier region.
17. The OLED structure of claim 16, wherein said polymer substrate layer is selected from a fluorocarbon polymer, a polyethersulphone and a polyimide.
18. The OLED structure of claim 16, wherein said polymer substrate layer is a polyester.
19. The OLED structure of claim 18, wherein said polyester is polyethylene terephthalate.
20. The OLED structure of claim 16, wherein said polymer substrate layer ranges from 75 to 625 microns in thickness.
21. The OLED structure of claim 16, wherein said first barrier region comprises at least one planarizing layer and at least one high-density material layer.
22. The OLED structure of claim 21, wherein said first barrier region comprises an alternating series of at least two planarizing layers and at least two high-density material layers.
23. The OLED structure of claim 22, wherein said alternating series comprises 3 to 7 planarizing layers and 3 to 7 high-density material layers.
24. The OLED structure of claim 21, wherein said planarizing layer comprises a material selected from fluorinated polymers, parylenes, cyclotenes and polyacrylates.
25. The OLED structure of claim 21, wherein said high-density material layer material comprises a metal oxide, a metal nitride, a metal carbide, or a metal oxynitride.
26. The OLED structure of claim 21, wherein said high-density material layer comprises a material selected from silicon oxide, silicon nitride, aluminum oxide, indium tin oxide and zinc indium tin oxide.
27. The OLED structure of claim 16, wherein said second barrier region comprises a metal layer.
28. The OLED structure of claim 27, wherein said second barrier region consists of a metal foil.
29. The OLED structure of claim 16, wherein said second barrier region comprises a polymer layer and an alternating series of at least two planarizing layers and at least two high-density material layers, and wherein said polymer layer is disposed adjacent said adhesive region.
30. The OLED structure of claim 16, further comprising a gettering material, wherein said gettering material, along with said OLED, is surrounded by said adhesive region, said polymer substrate layer and second barrier region.
31. The OLED structure of claim 16, wherein said adhesive region comprises an adhesive material selected from an ultraviolet-curable material and a thermally curable material.